

KOD65B.001APC

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Ikegami, et al.  
Appl. No. : 09/913,799  
Filed : December 31, 2001  
For : DRINK USING SEAWATER AND METHOD FOR PRODUCING  
THE SAME  
Examiner : N. Bhat  
Group Art Unit : 1761

DECLARATION UNDER 1.132

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

I, Koji Nakagawa, a co-inventor of the present application, do hereby declare as follows:

1 The following experiments were conducted by me or under my direct supervision to show influence of mineral-enriched drink derived from seawater on a blood stream in the body.

2 Seawater was obtained from the Pacific Ocean in the offing of Kochi Prefecture in Japan at a depth of 320 m. A mineral-enriched drink using the seawater was prepared in accordance with Example 1 of the present application, wherein the seawater was desalted and its mineral contents and hardness were adjusted as follows:

|          |         |
|----------|---------|
| Hardness | 1000    |
| Mg       | 200 ppm |
| Ca       | 71 ppm  |
| Na       | 74 ppm  |
| K        | 69 ppm  |

\*Mg/Ca=3/1

3 As a control, tap water (Ako City, Hyogo Prefecture, Japan) enriched with Mg, Ca, Na, and K using food additives and chemical reagents was prepared to give the hardness and the mineral contents identical to the above.

4 Ten healthy men in thirties who consented to the experiment were gathered as subjects. They drank 500 ml of the mineral-adjusted seawater before having breakfast. Blood was taken before drinking the mineral-enriched drink and one hour after drinking it. Immediately after

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which, heparin sodium was added to the whole blood so as to be 5%, and passage time of 100  $\mu$ l of whole blood was measured by a Micro Channel Array Flow Analyzer (manufactured by SanTree Kikou) with a micro channel chip having a channel width of 7  $\mu$ m (manufactured by Hitachi Haramachi Denshi Kogyo). At least one week after the analysis of the mineral-adjusted seawater, they drank the mineral-enriched tap water and the same analysis was conducted.

5 The results of transmit time through whole blood are shown as below.

| Test Sample                | Passage time of whole blood<br>(second/100 $\mu$ l of whole blood) |                 | Reduction rate (%) <sup>1</sup> |
|----------------------------|--|-----------------|---------------------------------|
|                            | Before drinking  | After drinking  |                                 |
| Mineral-adjusted seawater  | 53.5 $\pm$ 2.0   | 48.0 $\pm$ 1.0* | 9.0                             |
| Mineral-enriched tap water | 57.3 $\pm$ 7.2   | 65.1 $\pm$ 8.8  | -                               |

1: Reduction rate = (before drinking – after drinking)/(before drinking)  $\times$  100

\*: Statistically significant at significance level of 5% ( $p < 0.05$ )

6 As is apparent from the above table, even if the same amount of the same components (Mg, Ca, Na, K) were included in the each solution, only after drinking the mineral-adjusted seawater, the passage time of whole blood was reduced. According to the results, it was proved that the mineral-adjusted seawater has a significant effect on a blood stream in the body as compared with the mineral-enriched tap water.

7 Additionally, the following is Embodiment 4 disclosed in the present specification, wherein a mineral-adjusted seawater equivalent to the above mineral-adjusted seawater was used. In the embodiment, by having rats freely take high-cholesterol feeds and the mineral-adjusted seawater for four weeks, the total cholesterol level in rats' blood plasma and LDL-Ch were measured. Male Wister rats of 10 weeks (a group of eight) were used as test subjects. The results of the total cholesterol level and LDL-Ch are shown in the table below. It was confirmed that an increase in total cholesterol and LDL-Ch which is considered to cause arteriosclerosis was suppressed by taking the mineral-adjusted seawater. To my best knowledge, no mineral-enriched tap water has equivalent effects.

|  | Total Cholesterol<br>Level | LDL-Ch |
|--|----------------------------|--------|
| High cholesterol feeds                         | 144                        | 38     |
| High cholesterol feeds<br>+ the seawater drink | 101                        | 26     |

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8 I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Dated: 05.20.04

By: Koji Nakagawa  
Koji Nakagawa

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